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MARCH 1990 MONTHLY
GROUND WATER SAMPLING RESULTS
LIVINGSTON RAIL YARD
LIVINGSTON, MONTANA

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ENVIROCON, INC.

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MARCH 1990 MONTHLY
GROUND WATER SAMPLING RESULTS
LIVINGSTON RAIL YARD
LIVINGSTON, MONTANA

Submitted to:

Montana Department of Health
and Environmental Sciences
Cogswell Building
Helena, Montana 59620

Submitted by:

Envirocon, Inc.
101 International Way
P.O. Box 8243
Missoula, Montana 59807

Submittal Date:

August 3, 1990

ENVIROCON, INC.

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1.0 INTRODUCTION

Burlington Northern Railroad (BNRR), through its contractor Envirocon, Inc. (Envirocon), took 27 samples from 19 monitoring wells on and around the Livingston rail yard and from the B Street Municipal Water Well in Livingston, Montana. These wells were sampled on March 15, 16, and 21, 1990. Two of the 27 samples were trip blanks and three were field duplicates. All samples were sent to Energy Laboratories, Inc. (ELI) in Billings, Montana. All samples were analyzed for volatile organic constituents (VOCs) by EPA Method 524.2 except those from Wells 6, 7, L-87-3, L-87-5, LS-8, LS-11, L-88-10, L-88-13, L-87-8, and 89-2, which were analyzed for purgeable halocarbons (POX) by EPA Method 601. In addition, samples from Wells LG-10, 89-9, and the B Street Municipal Well were analyzed for total petroleum hydrocarbons (TPHs) by EPA Method 418.1. The sample from Well 89-9 was also analyzed for semivolatiles (EPA Method 625), pesticides and PCBs (EPA Method 608), and dissolved metals (several methods). The well numbers, sample numbers, and sampling methods are shown on Table 1.0. Well locations and analytical results are shown on Figure 1.0. Complete laboratory results are also enclosed in Appendix A.

The Montana Department of Health and Environmental Sciences (MDHES) took two split samples with Envirocon at Well LG-10 and at the B Street Municipal Well. The MDHES' samples were analyzed for TPHs by EPA Method 418.1 at Inter-Mountain Laboratories (IML) in Bozeman, Montana. Results of the MDHES' splits are shown in comparison to Envirocon's results on Figure 1.0.

TABLE 1.0

CORRELATION OF WELL AND SAMPLE NUMBERS
MARCH 1990

SAMPLE NUMBER	WELL NUMBER	ANALYTICAL METHOD*	SAMPLE METHOD	SAMPLE DATE
140101-297	# 6	601	DBP	3/15/90
140101-298	# 7	601	DBP	3/15/90
140101-299	L-87-3	601	DBP	3/15/90
140101-300	L-87-2	524.2	DBP	3/15/90
140101-301	DUP OF L-87-2	524.2	DBP	3/15/90
140101-302	L-87-5	601	DBP	3/15/90
140101-303	LS-11	601	DBP	3/15/90
140101-304	LS-8	601	DBP	3/15/90
140101-305	L-88-10	601	DBP	3/15/90
140101-306	L-88-13	601	DBP	3/15/90
140101-307	L-87-8	601	DBP	3/15/90
140101-308	L-87-7	524.2	DBP	3/15/90
140101-309	89-2	601	DBP	3/15/90
140101-310	89-9	524.2	DBP	3/16/90
140101-311	90-2A	524.2	NDBP	3/16/90
140101-312	DUP OF 90-2A	524.2	NDBP	3/16/90
140101-313	EQUIPMENT BLANK	524.2	N/A	3/16/90
140101-314	90-2B	524.2	NDBP	3/16/90
140101-315	LG-10	524.2	NDBP	3/21/90
140101-316	B STREET	524.2	TAP	3/21/90
140101-317	EQUIPMENT BLANK	524.2	N/A	3/21/90
140101-318	90-5	524.2	NDBP	3/21/90
140101-319	90-4	524.2	NDBP	3/21/90
140101-320	DUP OF 90-4	524.2	NDBP	3/21/90
140101-321	89-11	524.2	NDBP	3/21/90
140101-322	TRIP BLANK	524.2	N/A	3/21/90

NOTES: * Refers to EPA analytical method
DBP - Dedicated bladder pump
NDBP - Non-dedicated bladder pump
N/A - Not applicable

2.0 RESULTS AND INTERPRETATION

March sample results are consistent with previous monthly results, with the only notable concentration changes occurring at Wells LS-8 and LS-11. These changes are summarized below. More complete interpretation of monthly and seasonal variations in organic contaminant concentrations throughout the rail yard will be presented in the Ground Water Remedial Investigation Report.

Sample results from Wells LS-8 and LS-11 continue to show monthly shifts in VOC concentrations. The dichloroethene (DCE) concentration at Well LS-8 (cis-1,2-DCE and trans-1,2-DCE combined) decreased from 131.5 parts per billion (ppb) during February 1990 to 90.1 ppb during March 1990. The chlorobenzene concentration at Well LS-11 increased from 17 ppb during February to 33 ppb during March. Monthly concentration fluctuations at Wells LS-8 and LS-11 have been noted since May 1989 and may be due to such factors as ground water flow directions, precipitation events, and the seasonal rise and fall of the water table.

No detectable concentrations of VOCs or TPHs were found in samples from Well LG-10 or the B Street Municipal Well. MDHES took split samples from both wells. The splits were analyzed for TPHs at IML. As shown on Figure 1.0, MDHES' results show 8.2 parts per million (ppm) TPHs in the sample from the B Street Well and 7.3 ppm TPHs in the sample from Well LG-10.

In a letter dated July 16, 1990, the MDHES indicated to Envirocon that results of the MDHES sample from the B Street Well are inaccurate. This conclusion was based on a comparison with Envirocon's results and a "check sample" that MDHES had analyzed by Chen-Northern in Helena, Montana. No check sample was run for MDHES' sample from Well LG-10.

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FIGURE 1.0

WELL L-87-2

VINYL CHLORIDE 0.83
TRANS-1,2-DICHLOROETHENE 12
CIS-1,2-DICHLOROETHENE 862
TRICHLOROETHENE 73
TETRACHLOROETHENE 4.1
CHLOROBENZENE 91
O-XYLENE 2.0
2-CHLOROTOLUENE 39
1,4-DICHLOROBENZENE 2.8
1,2-DICHLOROBENZENE 2.3

WELL L-87-2 DUPLICATE

VINYL CHLORIDE 1.0
TRANS-1,2-DICHLOROETHENE 14
CIS-1,2-DICHLOROETHENE 791
TRICHLOROETHENE 70
TETRACHLOROETHENE 4.6
CHLOROBENZENE 102
O-XYLENE 2.0
2-CHLOROTOLUENE 33
1,4-DICHLOROBENZENE 2.7
1,2-DICHLOROBENZENE 2.4

WELL 89-9 (PPM)

SEMI VOLATILES	N/D
PCBS/PESTICIDES	N/D
DISSOLVED METALS	
CADMIUM	0.002
LEAD	0.02
SILVER	0.02

WELL 89-9

CIS-1,2-DICHLOROETHENE 3.0
TRICHLOROETHENE 4.0
TETRACHLOROETHENE 263

WELL L-87-S

CIS-1,2-DICHLOROETHENE 3.4
TETRACHLOROEHTENE 259
TRICHLOROETHENE 5.5

WELL L-88-13

CIS-1,2-DICHLOROETHENE 7.6
TETRACHLOROETHENE 43
TRICHLOROETHENE 8.3

WELL L-87-3

CIS-1,2-DICHLOROETHENE 70
TETRACHLOROETHENE 215
TRICHLOROETHENE 17

WELL 89-2

N/D

WELL 89-2 LAB DUPLICATE

N/D

WELL 7

TETRACHLOROETHENE 8.6

WELL LG-10

N/D

WELL LG-10

TOTAL PETROLEUM HYDROCARBONS	ppm
MDHES SPLIT	7.3
ENVIROCON	N/D

WELL 89-11

N/D

B STREET WELL

N/D

B STREET WELL

TOTAL PETROLEUM HYDROCARBONS	ppm
MDHES SPLIT	8.2
ENVIROCON	N/D

WELL L-87-8

CIS-1,2-DICHLOROETHENE 7.1
TETRACHLOROETHENE 95
TRICHLOROETHENE 19

WELL L-87-7

BENZENE 0.75
ETHYLBENZENE 1.6
O-XYLENE 1.7
ISOPROPYLBENZENE 3.0
NAPTHALENE 25

WELL 90-4

N/D

WELL 90-4 DUPLICATE

N/D

WELL 6

TETRACHLOROETHENE 1.5

WELL 90-2D

TRANS-1,2-DICHLOROETHENE 1.8
CIS-1,2-DICHLOROETHENE 178
TRICHLOROETHENE 22
TETRACHLOROETHENE 181

WELL L-88-10

CHLOROBENZENE 27
1,2-DICHLOROBENZENE 1.2
1,4-DICHLOROBENZENE 1.6
CIS-1,2-DICHLOROETHENE 266
TRANS-1,2-DICHLOROETHENE 3.1
TETRACHLOROETHENE 176
TRICHLOROETHENE 27

WELL LS-8

CHLOROBENZENE 51
1,4-DICHLOROBENZENE 5.4
CIS-1,2-DICHLOROETHENE 87
TRANS-1,2-DICHLOROETHENE 3.1
TETRACHLOROETHENE 109
TRICHLOROETHENE 19

WELL LS-11

CHLOROBENZENE 33
1,4-DICHLOROBENZENE 1.2
CIS-1,2-DICHLOROETHENE 96
TRANS-1,2-DICHLOROETHENE 1.7
TETRACHLOROETHENE 100
TRICHLOROETHENE 17

KAISER
SHULINS
BRUHA
MONICAL
O'DELL
QUESENBERRY
RUGGLES
BROWN
HANKS
MAINT.
POTW
DEPUY
B STREET
L STREET
QUISEL
PARK HIGH SCHOOL

EXPLANATION

- MONITORING WELL
- MUNICIPAL WATER SUPPLY WELL
- PRIVATE WELL

BENZENE 0.75 - ALL CONCENTRATIONS IN PARTS PER BILLION UNLESS OTHERWISE NOTED

N/D - NO VOLATILE CONSTITUENTS DETECTED

LEGEND

HORIZONS, INC.

LIVINGSTON RAIL YARD
ENVIROCON, INC.
Missoula, Montana

PROJECT NO	140101
DATE	3/90
REVISION	

ENVIROCON

FIGURE 1.0
MARCH 1990
MONTHLY GROUND WATER SAMPLE RESULTS
LIVINGSTON RAIL YARD
LIVINGSTON, MONTANA

It is Envirocon's opinion that if the MDHES' results from the B Street Well are inaccurate, then the results from Well LG-10 are questionable. The samples show similar concentrations, both were taken on March 21, 1990, and both were analyzed at IML.

During the March 1990 sample round, Envirocon followed the quality assurance/quality control (QA/QC) program outlined in the Interim Remedial Measures Work Plan (IRMWP) (Envirocon, April 1989). As shown in the laboratory results (Appendix A), no detectable concentrations of any Method 601 analytes were found in the trip blanks. As shown on Figure 1.0, results of field duplicates taken from Wells L-87-2 and 90-4 match results reported from the original samples.

Two equipment decontamination blanks were taken, one before sampling Well 90-2B and another before sampling Well 90-5. Small concentrations of chloroform, a constituent commonly found in deionized water, were detected in both equipment blanks. In addition, 2.2 ppb of tetrachloroethene (PCE) was detected in the equipment blank taken immediately before sampling Well 90-2B. Because the PCE concentration detected in Well 90-2B was two orders of magnitude larger than the PCE concentration in the equipment blank, no adjustments were necessary in interpreting Well 90-2B PCE results.

APPENDIX A
LABORATORY RESULTS

ENVIROCON, INC.

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1107 SOUTH BROADWAY • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-873-5227

ENVIROCON
PO BOX 8243
MISSOULA MT 59807

PROJECT: Livingston / BN

Water Analysis

		#6	#7	L-87-3
LAB NO.	90-5990	90-5991	90-5992	90-5993
SAMPLE IDENTIFICATION	140101-296	140101-297	140101-298	140101-299
DATE REPORTED	04/13/90	04/13/90	04/13/90	04/13/90
SAMPLE SUBMITTED	03/19/90	03/19/90	03/19/90	03/19/90
SAMPLE DATE	03/15/90	03/15/90	03/15/90	03/15/90
SAMPLE TIME	0915	1030	1103	1140
Purgeable Organics (EPA Method 601)	ug/l	ug/l	ug/l	ug/l
Bromodichloromethane	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0
2-Chloroethylvinyl ether	<1.0	<1.0	<1.0	<1.0
2-Chlorotoluene	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	<1.0	<1.0	<1.0	70
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<0.50	1.5	8.6	215
Tetrachloroethene	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	<0.50	<0.50	<0.50	17
Trichloroethene	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	<1.0	<1.0	<1.0	<1.0
Dichlorodifluoromethane				

cc: Envirocon, Livingston.

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PROJECT: Livingston / BN

Water Analysis	L-87-5	LS-11	LS-8	L-88-10
LAB NO.	90-5994	90-5995	90-5996	90-5997
SAMPLE IDENTIFICATION	140101-302	140101-303	140101-304	140101-305
DATE REPORTED	04/13/90	04/13/90	04/13/90	04/13/90
SAMPLE SUBMITTED	03/19/90	03/19/90	03/19/90	03/19/90
SAMPLE DATE	03/15/90	03/15/90	03/15/90	03/15/90
SAMPLE TIME	1310	1455	1530	1615
Purgeable Organics (EPA Method 601)	ug/l	ug/l	ug/l	ug/l
Bromodichloromethane	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	<1.0	33	51	27
Chloroethane	<1.0	<1.0	<1.0	<1.0
2-Chloroethylvinyl ether	<1.0	<1.0	<1.0	<1.0
2-Chlorotoluene	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	<1.0	<1.0	<1.0	1.2
1,3-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	<0.50	12	5.4	1.6
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	3.4	96	87	266
trans-1,2-Dichloroethene	<1.0	1.7	3.1	3.1
1,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0
Methylene chloride	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	259	100	109	176
1,1,1-Trichloroethane	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0
Trichloroethene	5.5	17	19	27
Trichlorofluoromethane	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	<1.0	<1.0	<1.0	<1.0

cc: Envirocon, Livingston.

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	L-87-2	Dup. of L-87-2	L-87-7	90-2A
LAB NO.	90-6001	90-6002	90-6003	90-6004
SAMPLE IDENTIFICATION	140101-300	140101-301	140101-308	140101-311
DATE REPORTED	04/13/90	04/13/90	04/13/90	04/13/90
SAMPLE SUBMITTED	03/19/90	03/19/90	03/19/90	03/19/90
SAMPLE DATE	03/15/90	03/15/90	03/15/90	03/16/90
SAMPLE TIME	1230	1245	1815	1445
VOLATILE ORGANIC CONSTITUENT	ug/l	ug/l	ug/l	ug/l
Ethylbenzene	<1.0	<1.0	1.6	<1.0
m-Xylene	<1.0	<1.0	<1.0	<1.0
p-Xylene	<1.0	<1.0	<1.0	<1.0
o-Xylene	2.0	2.0	1.7	<1.0
Styrene	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	<1.0	<1.0	3.0	<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0
Bromobenzene	<1.0	<1.0	<1.0	<1.0
1,2,3-Trichloropropane	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0
2-Chlorotoluene	39	33	<1.0	<1.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
4-Chlorotoluene	<1.0	<1.0	<1.0	<1.0
tert-Butylbenzene	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
sec-Butylbenzene	<1.0	<1.0	<1.0	<1.0
p-Isopropyltoluene	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	2.8	2.7	<0.50	0.54
n-Butylbenzene	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	2.3	2.4	<1.0	<1.0
1,2-Dibromo-3-Chloropropane	<1.0	<1.0	<1.0	<1.0
1,2,4-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	<1.0	<1.0	<1.0	<1.0
Naphthalene	<1.0	<1.0	25	<1.0
1,2,3-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0

REMARKS: Sample was properly preserved and in specified container. Sample was analyzed in accordance with EPA Method 524.2.

cc: Envirocon, Livingston.

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1107 SOUTH BROADWAY • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER ANALYSIS

PROJECT: Livingston / BN

PAGE 1

	L-87-2	Dup. of L-87-2	L-87-1	90-2A
LAB NO.	90-6001	90-6002	90-6003	90-6004
SAMPLE IDENTIFICATION	140101-300	140101-301	140101-308	140101-311
DATE REPORTED	04/13/90	04/13/90	04/13/90	04/13/90
SAMPLE SUBMITTED	03/19/90	03/19/90	03/19/90	03/19/90
SAMPLE DATE	03/15/90	03/15/90	03/15/90	03/16/90
SAMPLE TIME	1230	1245	1815	1445
VOLATILE ORGANIC CONSTITUENT	ug/l	ug/l	ug/l	ug/l
Dichlorodifluoromethane	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	0.83	1.0	<0.50	<0.50
Bromomethane	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	12	14	<1.0	1.0
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0
2,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	862	791	<1.0	119
Chloroform	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	<0.50	<0.50	<0.50	<0.50
1,1-Dichloropropene	<1.0	<1.0	<1.0	<1.0
Benzene	<0.50	<0.50	0.75	<0.50
1,2-Dichloroethane	<0.50	<0.50	<0.50	<0.50
Trichloroethene	73	70	<0.50	20
1,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	<1.0	<1.0	<1.0	<1.0
Dibromomethane	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	4.1	4.6	<0.50	251
1,3-Dichloropropane	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	91	102	<1.0	2.3
1,1,1,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0

cc: Envirocon, Livingston.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

PROJECT: Livingston/BN

Quality Assurance Spiked Analysis

CONSTITUENT	SPIKE AMOUNT ug/l	P (%)	RANGE FOR P (%)
1,1-Dichloroethene	5.0	110	60-140
Benzene	5.0	127	60-140
Toluene	5.0	140	60-140
Trichloroethene	5.0	129	60-140
Chlorobenzene	5.0	93	60-140

P = percent recovery measured.

NOTE: Lab no. 90-6001 was spiked with the above constituents with these results.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

PROJECT: Livingston / BN

Water Analysis	L-88-13	L-87-8	89-2
LAB NO.	90-5998	90-5999	90-6000
SAMPLE IDENTIFICATION	140101-306	140101-307	140101-309
DATE REPORTED	04/13/90	04/13/90	04/13/90
SAMPLE SUBMITTED	03/19/90	03/19/90	03/19/90
SAMPLE DATE	03/15/90	03/15/90	03/15/90
SAMPLE TIME	1645	1730	1020
Purgeable Organics (EPA Method 601)	ug/l	ug/l	ug/l
Bromodichloromethane	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0
Bromomethane	<1.0	<1.0	<1.0
Carbon tetrachloride	<0.50	<0.50	<0.50
Chlorobenzene	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0
2-Chloroethylvinyl ether	<1.0	<1.0	<1.0
2-Chlorotoluene	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0
Dibromochloromethane	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	<0.50	<0.50	<0.50
1,1-Dichloroethane	<1.0	<1.0	<1.0
1,2-Dichloroethane	<0.50	<0.50	<0.50
1,1-Dichloroethene	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	7.6	7.1	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0
1,2-Dichloropropane	<1.0	<1.0	<1.0
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	<1.0	<1.0	<1.0
Methylene chloride	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0
Tetrachloroethene	43	95	<0.50
1,1,1-Trichloroethane	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	<1.0	<1.0	<1.0
Trichloroethene	8.3	19	<0.50
Trichlorofluoromethane	<1.0	<1.0	<1.0
Vinyl chloride	<0.50	<0.50	<0.50
Dichlorodifluoromethane	<1.0	<1.0	<1.0

cc: Envirocon, Livingston.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER ANALYSIS

PROJECT: Livingston / BN

PAGE 1

	Dup. of 90-2A	Equip. Blank	90-2B	89-9
LAB NO.	90-6005	90-6006	90-6007	90-6008
SAMPLE IDENTIFICATION	140101-312	140101-313	140101-314	140101-310
DATE REPORTED	04/13/90	04/13/90	04/13/90	04/13/90
SAMPLE SUBMITTED	03/19/90	03/19/90	03/19/90	03/19/90
SAMPLE DATE	03/16/90	03/16/90	03/16/90	03/16/90
SAMPLE TIME	1500	1530	1630	1230
VOLATILE ORGANIC CONSTITUENT	ug/l	ug/l	ug/l	ug/l
Dichlorodifluoromethane	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<0.50	<0.50	<0.50	<0.50
Bromomethane	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	1.0	<1.0	1.8	<1.0
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0
2,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	129	<1.0	178	3.0
Chloroform	<1.0	3.2	<1.0	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	<0.50	<0.50	<0.50	<0.50
1,1-Dichloropropene	<1.0	<1.0	<1.0	<1.0
Benzene	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	<0.50	<0.50	<0.50	<0.50
Trichloroethene	21	<0.50	22	4.0
1,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	<1.0	<1.0	<1.0	<1.0
Dibromomethane	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	237	2.2	181	263
1,3-Dichloropropane	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	2.5	<1.0	<1.0	<1.0
1,1,1,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0

cc: Envirocon, Livingston.

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	Dup of 90-2A	Equip. Blank	90-2B	89-9
LAB NO.	90-6005	90-6006	90-6007	90-6008
SAMPLE IDENTIFICATION	140101-312	140101-313	140101-314	140101-310
DATE REPORTED	04/13/90	04/13/90	04/13/90	04/13/90
SAMPLE SUBMITTED	03/19/90	03/19/90	03/19/90	03/19/90
SAMPLE DATE	03/16/90	03/16/90	03/16/90	03/16/90
SAMPLE TIME	1500	1530	1630	1230
VOLATILE ORGANIC CONSTITUENT	ug/l	ug/l	ug/l	ug/l
Ethylbenzene	<1.0	<1.0	<1.0	<1.0
m-Xylene	<1.0	<1.0	<1.0	<1.0
p-Xylene	<1.0	<1.0	<1.0	<1.0
o-Xylene	<1.0	<1.0	<1.0	<1.0
Styrene	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0
Bromobenzene	<1.0	<1.0	<1.0	<1.0
1,2,3-Trichloropropane	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0
2-Chlorotoluene	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
4-Chlorotoluene	<1.0	<1.0	<1.0	<1.0
tert-Butylbenzene	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
sec-Butylbenzene	<1.0	<1.0	<1.0	<1.0
p-Isopropyltoluene	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	0.50	<0.50	<0.50	<0.50
n-Butylbenzene	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0
1,2-Dibromo-3-Chloropropane	<1.0	<1.0	<1.0	<1.0
1,2,4-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	<1.0	<1.0	<1.0	<1.0
Naphthalene	<1.0	<1.0	<1.0	<1.0
1,2,3-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0

REMARKS: Sample was properly preserved and in specified container. Sample was analyzed in accordance with EPA Method 524.2.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

EPA WATER QUALITY CONTROL SAMPLE

GC/MS BASE NEUTRALS

PROJECT: Livingston / BN

PARAMETER	True Value, ug/l	P (%)	Range for P, Ps (%)
1,4-Dichlorobenzene	50	77	20-124
Hexachloroethane	50	79	40-113
Nitrobenzene	50	88	35-180
Naphthalene	50	93	21-133
Dimethyl Phthalate	50	93	D-112
Acenaphthene	50	84	47-145
Fluorene	50	96	59-121
4-Chlorophenyl phenyl ether	50	94	25-158
4-Bromophenyl phenyl ether	50	89	53-127
Anthracene	50	81	27-133
Fluoranthene	50	85	26-137
Butyl benzyl phthalate	50	91	D-152
Chrysene	50	82	17-168
Bis (2-Ethyl Hexyl) Phthalate	50	93	8-158
Benzo (b) Fluoranthene	50	108	24-159
Benzo (a) pyrene	50	81	17-163
Dibenzo (a,h) anthracene	50	86	D-227
Benzo (g,h,i) perylene	50	94	D-219

P,Ps = Percent recovery measured.

This EPA Reference sample was analyzed with your
Lab no.s 90-6008.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER VOLATILE SURROGATE RECOVERY

PROJECT: Livingston / BN

SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#
90-6008	55	68	95	23	21	35

	QC LIMITS
S1 (NBZ) = Nitrobenzene-d5	(35-114)
S2 (FBP) = 2-Fluorobiphenyl	(43-116)
S3 (TPH) = Terphenyl-d14	(33-141)
S4 (PHL) = Phenol-d5	(10-94)
S5 (2FP) = 2-Fluorophenol	(21-100)
S6 (TBP) = 2,4,6-Tribromophenol	(10-123)

Column to be used to flag recovery values with an asterisk

*Values outside of contract required QC limits

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

EPA WATER POLLUTION QUALITY
CONTROL SAMPLES

PROJECT: Livingston / BN

Chlorinated Hydrocarbon Pesticides

PARAMETER	True Value, ug/l	P (%)	Range for P, Ps (%)
Heptachlor	2.0	77.5	42-122
Aldrin	2.0	85.0	34-111
DDE	2.0	108	30-145
Dieldrin	2.0	108	36-146
DDD	10.0	68.5	31-141
DDT	10.0	61.8	25-160
Beta-BHC	2.0	68.0	17-147
Heptachlor Epoxide	2.0	74.8	37-142
Endosulfan I	2.0	73.0	45-153
Endosulfan II	10.0	53.0	D-202

P, Ps = Percent recovery measured.

This EPA Reference sample was analyzed with your
Lab no. 90-6008.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

PROJECT: Livingston / BN

Water Analysis

	Duplicate	Duplicate
LAB NO.	90-5990	90-6000
SAMPLE IDENTIFICATION	140101-296	140101-309
DATE REPORTED	04/13/90	04/13/90
SAMPLE SUBMITTED	03/19/90	03/19/90
SAMPLE DATE	03/15/90	03/15/90
SAMPLE TIME	0915	1020
Purgeable Organics (EPA Method 601)	ug/l	ug/l
Bromodichloromethane	<1.0	<1.0
Bromoform	<1.0	<1.0
Bromomethane	<1.0	<1.0
Carbon tetrachloride	<0.50	<0.50
Chlorobenzene	<1.0	<1.0
Chloroethane	<1.0	<1.0
2-Chloroethylvinyl ether	<1.0	<1.0
2-Chlorotoluene	<1.0	<1.0
Chloroform	<1.0	<1.0
Chloromethane	<1.0	<1.0
Dibromochloromethane	<1.0	<1.0
1,2-Dichlorobenzene	<1.0	<1.0
1,3-Dichlorobenzene	<1.0	<1.0
1,4-Dichlorobenzene	<0.50	<0.50
1,1-Dichloroethane	<1.0	<1.0
1,2-Dichloroethane	<0.50	<0.50
1,1-Dichloroethene	<0.50	<0.50
cis-1,2-Dichloroethene	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0
1,2-Dichloropropane	<1.0	<1.0
cis-1,3-Dichloropropene	<1.0	<1.0
trans-1,3-Dichloropropene	<1.0	<1.0
Methylene chloride	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0
Tetrachloroethene	<0.50	<0.50
1,1,1-Trichloroethane	<0.50	<0.50
1,1,2-Trichloroethane	<1.0	<1.0
Trichloroethene	<0.50	<0.50
Trichlorofluoromethane	<1.0	<1.0
Vinyl chloride	<0.50	<0.50
Dichlorodifluoromethane	<1.0	<1.0

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER ANALYSIS

PROJECT: Livingston / BN

LAB NO.	90-6008
SAMPLE IDENTIFICATION	140101-310
DATE REPORTED	04/13/90
SAMPLE SUBMITTED	03/19/90
SAMPLE DATE	03/16/90
SAMPLE TIME	1230

89-9

EPA METHOD 625

ACID EXTRACTABLES	ug/l
4-Chloro-3-methylphenol	<10
2-Chlorophenol	<10
2,4-Dichlorophenol	<10
2,4-Dimethylphenol	<10
2,4-Dinitrophenol	<50
2-Methyl-4,6-dinitrophenol	<50
2-Nitrophenol	<10
4-Nitrophenol	<50
Pentachlorophenol	<50
Phenol	<10
2,4,6-Trichlorophenol	<10

BASE NEUTRAL EXTRACTABLES	ug/l
Acenaphthene	<10
Acenaphthylene	<10
Anthracene	<10
Azobenzene	<10
Benzidine	<10
Benzo(a)anthracene	<10
Benzo(a)pyrene	<10
Benzo(b)fluoranthene	<10
Benzo(k)fluoranthene	<10
Benzo(ghi)perylene	<10
Bis(2-chloroethoxy)methane	<10
Bis(2-chloroethyl)ether	<10
Bis(2-chloroisopropyl)ether	<10
Bis(2-ethylhexyl)phthalate	<10
4-Bromophenylphenyl ether	<10
Butyl benzyl phthalate	<10

cc: Envirocon, Livingston.

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LAB NO.	90-6008
SAMPLE IDENTIFICATION	140101-310
DATE REPORTED	04/13/90
SAMPLE SUBMITTED	03/19/90
SAMPLE DATE	03/16/90
SAMPLE TIME	1230

EPA METHOD 8270

BASE NEUTRAL EXTRACTABLES	ug/l
2-Chloronaphthalene	<10
4-Chlorophenylphenyl ether	<10
Chrysene	<10
Dibenzo(a,h)anthracene	<10
1,2-Dichlorobenzene	<10
1,3-Dichlorobenzene	<10
1,4-Dichlorobenzene	<10
3,3-Dichlorobenzidine	<10
Diethyl phthalate	<10
Dimethyl phthalate	<10
Di-n-butyl phthalate	<10
2,4-Dinitrotoluene	<10
2,6-Dinitrotoluene	<10
Di-n-octyl phthalate	<10
Fluoranthene	<10
Fluorene	<10
Hexachlorobenzene	<10
Hexachlorobutadiene	<10
Hexachloroethane	<10
Indeno(1,2,3-cd)pyrene	<10
Isophorone	<10
Naphthalene	<10
Nitrobenzene	<10
N-Nitrosophenylamine	<10
N-Nitrosodi-n-propylamine	<10
Phenanthrene	<10
Pyrene	<10
1,2,4-Trichlorobenzene	<10

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER ANALYSIS

PROJECT: Livingston / BN

LAB NO.	90-6008
SAMPLE IDENTIFICATION	140101-310
DATE REPORTED	04/13/90
SAMPLE SUBMITTED	03/19/90
SAMPLE DATE	03/16/90
SAMPLE TIME	1230

89-9

Pesticides and PCB's (EPA Method 608)	ug/l
Aldrin	<0.05
alpha BHC	<0.05
beta BHC	<0.05
delta BHC	<0.05
gamma BHC	<0.05
Chlordane	<0.10
4,4'-DDD	<0.10
4,4'-DDE	<0.05
4,4'-DDT	<0.10
Dieldrin	<0.05
Endosulfan I	<0.10
Endosulfan II	<0.05
Endosulfan sulfate	<0.10
Endrin	<0.05
Endrin aldehyde	<0.10
Heptachlor	<0.05
Heptachlor epoxide	<0.10
Toxaphene	<1.0
PCB-1016	<1.0
PCB-1221	<1.0
PCB-1232	<1.0
PCB-1242	<1.0
PCB-1248	<1.0
PCB-1254	<1.0
PCB-1260	<1.0

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER ANALYSIS

PROJECT: Livingston / BN

LAB NO.	90-6008
SAMPLE IDENTIFICATION	140101-310
DATE REPORTED	04/13/90
SAMPLE SUBMITTED	03/19/90
SAMPLE DATE	03/16/90
SAMPLE TIME	1230
Dissolved:	ug/l
Arsenic	<0.005
Barium	<0.1
Cadmium	0.002
Chromium	<0.02
Lead	0.02
Mercury	<0.001
Selenium	<0.005
Silver	0.02
Total Petroleum Hydrocarbons	<0.1

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

QUALITY ASSURANCE SPIKE ANALYSIS

PROJECT: Livingston / BN

CONSTITUENT	Spike Amount, ug/l	P (%)	Range for P (%)
Bromochloromethene	5.0	72	60-140
cis 1,2-Dichloroethene	5.0	88	60-140
1,3-Dichloropropane	5.0	101	60-140
1,1,1,2-Tetrachloroethane	5.0	76	60-140
1,2,3-Trichloropropane	5.1	74	60-140
o-Xylene	5.0	88	60-140
2-Chlorotoluene	5.0	70	60-140

P = Percent recovery measured.

Lab No. 90-5991 was spiked with the above constituent with these results.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER VOLATILE SURROGATE RECOVERY

PROJECT: Livingston / BN

SAMPLE NO.	S2 (BFB)#
90-5990	93
90-5991	96
90-5992	95
90-5993	96
90-5994	97
90-5995	96
90-5996	98
90-5997	94
90-5998	93
90-5999	106
90-6000	101

QC LIMITS	
S2 (BFB) = Bromofluorobenzene	(80-120)

Column to be used to flag recovery values with an asterisk

* Values outside contract required QC limits

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER VOLATILE SURROGATE RECOVERY

PROJECT: Livingston / BN

SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#
90-6001	96	91	91
90-6002	106	101	94
90-6003	95	98	102
90-6004	93	97	101
90-6005	93	97	92
90-6006	98	113	98
90-6007	96	103	95
90-6008	96	111	87

	QC LIMITS
S1 (TOL) = Toluene-d8	(80-120)
S2 (BFB) = Bromofluorobenzene	(80-120)
S3 (DCE) = 1,2-Dichloroethane-d4	(80-120)

Column to be used to flag recovery values with an asterisk

*Values outside of contract required QC limits

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

EPA WATER SUPPLY QUALITY
CONTROL SAMPLE

Volatile Organic Contaminants

PROJECT: Livingston / BN

PARAMETER	True Value, ug/l	P (%)	Range for P (%)
Bromochloromethane	5.0	88	60-140
cis 1,2-Dichloroethene	5.0	86	60-140
1,3-Dichloropropane	5.0	102	60-140
1,1,1,2-Tetrachloroethane	5.0	72	60-140
1,2,3-Trichloropropane	5.1	76	60-140
2-Chlorotoluene	5.0	92	60-140

P = Percent recovery measured.

This EPA Quality Control sample was analyzed with your lab no.s 90-5990 thru 90-6000 with the above results.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER ANALYSIS

PROJECT: Livingston / BN

	LG-10	B-Street
LAB NO.	90-6366	90-6367
SAMPLE IDENTIFICATION	140101-315	140101-316
REPORT DATE	04/12/90	04/12/90
SAMPLE SUBMITTED	03/22/90	03/22/90
SAMPLE DATE	03/21/90	03/21/90
SAMPLE TIME	0915	1050
	mg/l	mg/l
Total Petroleum Hydrocarbons	<0.1	<0.1

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

PROJECT: Livingston/BN

Quality Assurance Spiked Analysis

CONSTITUENT	SPIKE AMOUNT ug/l	P (%)	RANGE FOR P (%)
Bromochloromethene	5.0	84	60-140
cis 1,2-Dichloroethene	5.0	89	60-140
1,3-Dichloropropane	5.0	106	60-140
1,1,1,2-Tetrachloroethane	5.0	77	60-140
1,2,3-Trichloropropane	5.1	77	60-140
o-Xylene	5.0	103	60-140
2-Chlorotoluene	5.0	88	60-140

P = percent recovery measured.

NOTE: Lab no. 90-6371 was spiked with the above constituents with these results.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

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WATER ANALYSIS

PROJECT: Livingston / BN

	LG-10	B-Street	Equip. Blank	90-5
LAB NO.	90-6366	90-6367	90-6368	90-6369
SAMPLE IDENTIFICATION	140101-315	140101-316	140101-317	140101-318
REPORT DATE	04/12/90	04/12/90	04/12/90	04/12/90
SAMPLE SUBMITTED	03/22/90	03/22/90	03/22/90	03/22/90
SAMPLE DATE	03/21/90	03/21/90	03/21/90	03/21/90
SAMPLE TIME	0915	1050	1245	1315
VOLATILE ORGANIC CONSTITUENT	ug/l	ug/l	ug/l	ug/l
Dichlorodifluoromethane	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<0.50	<0.50	<0.50	<0.50
Bromomethane	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0
2,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	9.6	<1.0
Bromochloromethane	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	<0.50	<0.50	<0.50	<0.50
1,1-Dichloropropene	<1.0	<1.0	<1.0	<1.0
Benzene	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	<0.50	<0.50	<0.50	<0.50
Trichloroethene	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	<1.0	<1.0	<1.0	<1.0
Dibromomethane	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropane	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0
1,1,1,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0

cc: Envirocon, Livingston.

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	LG-10	B-Street	Equip. Blank	90-5
LAB NO.	90-6366	90-6367	90-6368	90-6369
SAMPLE IDENTIFICATION	140101-315	140101-316	140101-317	140101-318
REPORT DATE	04/12/90	04/12/90	04/12/90	04/12/90
SAMPLE SUBMITTED	03/22/90	03/22/90	03/22/90	03/22/90
SAMPLE DATE	03/21/90	03/21/90	03/21/90	03/21/90
SAMPLE TIME	0915	1050	1245	1315
VOLATILE ORGANIC CONSTITUENT	ug/l	ug/l	ug/l	ug/l
Ethylbenzene	<1.0	<1.0	<1.0	<1.0
p-Xylene	<1.0	<1.0	<1.0	<1.0
m-Xylene	<1.0	<1.0	<1.0	<1.0
o-Xylene	<1.0	<1.0	<1.0	<1.0
Styrene	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0
Bromobenzene	<1.0	<1.0	<1.0	<1.0
1,2,3-Trichloropropane	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0
2-Chlorotoluene	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
4-Chlorotoluene	<1.0	<1.0	<1.0	<1.0
tert-Butylbenzene	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
sec-Butylbenzene	<1.0	<1.0	<1.0	<1.0
p-Isopropyltoluene	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50
n-Butylbenzene	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0
1,2-Dibromo-3-Chloropropane	<1.0	<1.0	<1.0	<1.0
1,2,4-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	<1.0	<1.0	<1.0	<1.0
Naphthalene	<1.0	<1.0	<1.0	<1.0
1,2,3-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0

REMARKS: Sample was properly preserved and in specified container. Sample was analyzed in accordance with EPA Method 524.2.

cc: Envirocon, Livingston.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

EPA WATER SUPPLY QUALITY
CONTROL SAMPLE

Volatile Organic Contaminants

PROJECT: Livingston / BN

PARAMETER	True Value, ug/l	P (%)	Range for P (%)
Bromochloromethene	5.0	86	60-140
cis 1,2-Dichloroethene	5.0	84	60-140
1,3-Dichloropropane	5.0	101	60-140
1,1,1,2-Tetrachloroethene	5.0	73	60-140
1,2,3-Trichloropropane	5.1	83	60-140
o-Xylene	5.0	99	60-140
2-Chlorotoluene	5.0	90	60-140

P = Percent recovery measured.

This EPA Quality Control sample was analyzed with your lab no.s 90-6366 thru 90-6373 with the above results.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

PROJECT: Livingston / BN

SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#
90-6366	88	90	96
90-6367	86	95	96
90-6368	88	102	90
90-6369	92	96	92
90-6370	94	100	94
90-6371	91	95	106
90-6372	88	88	102
90-6373	91	94	105

	QC LIMITS
S1 (TOL) = Toluene-d8	(80-120)
S2 (BFB) = Bromofluorobenzene	(80-120)
S3 (DCE) = 1,2-Dichloroethane-d4	(80-120)

Column to be used to flag recovery values with an asterisk

* Values outside contract required QC limits

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER ANALYSIS

PROJECT: Livingston / BN

	Duplicate
LAB NO.	90-6370
SAMPLE IDENTIFICATION	140101-319
REPORT DATE	04/12/90
SAMPLE SUBMITTED	03/22/90
SAMPLE DATE	03/21/90
SAMPLE TIME	1420
VOLATILE ORGANIC CONSTITUENT	ug/l
Dichlorodifluoromethane	<1.0
Chloromethane	<1.0
Vinyl chloride	<0.50
Bromomethane	<1.0
Chloroethane	<1.0
Trichlorofluoromethane	<1.0
1,1-Dichloroethene	<0.50
Methylene Chloride	<1.0
trans-1,2-Dichloroethene	<1.0
1,1-Dichloroethane	<1.0
2,2-Dichloropropane	<1.0
cis-1,2-Dichloroethene	<1.0
Chloroform	<1.0
Bromochloromethane	<1.0
1,1,1-Trichloroethane	<0.50
Carbon Tetrachloride	<0.50
1,1-Dichloropropene	<1.0
Benzene	<0.50
1,2-Dichloroethane	<0.50
Trichloroethene	<0.50
1,2-Dichloropropane	<1.0
Bromodichloromethane	<1.0
Dibromomethane	<1.0
Toluene	<1.0
1,1,2-Trichloroethane	<1.0
Tetrachloroethene	<0.50
1,3-Dichloropropane	<1.0
Dibromochloromethane	<1.0
1,2-Dibromoethane	<1.0
Chlorobenzene	<1.0
1,1,1,2-Tetrachloroethane	<1.0

90-4

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	Duplicate
LAB NO.	90-6370
SAMPLE IDENTIFICATION	140101-319
REPORT DATE	04/12/90
SAMPLE SUBMITTED	03/22/90
SAMPLE DATE	03/21/90
SAMPLE TIME	1420
VOLATILE ORGANIC CONSTITUENT	ug/l
Ethylbenzene	<1.0
p-Xylene	<1.0
m-Xylene	<1.0
o-Xylene	<1.0
Styrene	<1.0
Bromoform	<1.0
Isopropylbenzene	<1.0
1,1,2,2-Tetrachloroethane	<1.0
Bromobenzene	<1.0
1,2,3-Trichloropropane	<1.0
n-Propylbenzene	<1.0
2-Chlorotoluene	<1.0
1,3,5-Trimethylbenzene	<1.0
4-Chlorotoluene	<1.0
tert-Butylbenzene	<1.0
1,2,4-Trimethylbenzene	<1.0
sec-Butylbenzene	<1.0
p-Isopropyltoluene	<1.0
1,3-Dichlorobenzene	<1.0
1,4-Dichlorobenzene	<0.50
n-Butylbenzene	<1.0
1,2-Dichlorobenzene	<1.0
1,2-Dibromo-3-Chloropropane	<1.0
1,2,4-Trichlorobenzene	<1.0
Hexachlorobutadiene	<1.0
Naphthalene	<1.0
1,2,3-Trichlorobenzene	<1.0
cis-1,3-Dichloropropene	<1.0
trans-1,3-Dichloropropene	<1.0

90-4

REMARKS: Sample was properly preserved and in specified container. Sample was analyzed in accordance with EPA Method 524.2.

cc: Envirocon, Livingston.

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ENVIROCON
PO BOX 8243
MISSOULA MT 59807

WATER ANALYSIS

PROJECT: Livingston / BN

	90-4	Dup of 90-4	89-11	TRIP Blank
LAB NO.	90-6370	90-6371	90-6372	90-6373
SAMPLE IDENTIFICATION	140101-319	140101-320	140101-321	140101-322
REPORT DATE	04/12/90	04/12/90	04/12/90	04/12/90
SAMPLE SUBMITTED	03/22/90	03/22/90	03/22/90	03/22/90
SAMPLE DATE	03/21/90	03/21/90	03/21/90	03/21/90
SAMPLE TIME	1420	1440	1500	1630
VOLATILE ORGANIC CONSTITUENT	ug/l	ug/l	ug/l	ug/l
Dichlorodifluoromethane	<1.0	<1.0	<1.0	<1.0
Chloromethane	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<0.50	<0.50	<0.50	<0.50
Bromomethane	<1.0	<1.0	<1.0	<1.0
Chloroethane	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0
2,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0
Chloroform	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	<1.0	<1.0	<1.0	<1.0
1,1-Dichloropropene	<0.50	<0.50	<0.50	<0.50
Benzene	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	<0.50	<0.50	<0.50	<0.50
Trichloroethene	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	<1.0	<1.0	<1.0	<1.0
Dibromomethane	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0
1,3-Dichloropropane	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0
1,1,1,2-Tetrachloroethane				

cc: Envirocon, Livingston.

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	90-4	Dup. of 90-4	89-11	TRIP BLANK
LAB NO.	90-6370	90-6371	90-6372	90-6373
SAMPLE IDENTIFICATION	140101-319	140101-320	140101-321	140101-322
REPORT DATE	04/12/90	04/12/90	04/12/90	04/12/90
SAMPLE SUBMITTED	03/22/90	03/22/90	03/22/90	03/22/90
SAMPLE DATE	03/21/90	03/21/90	03/21/90	03/21/90
SAMPLE TIME	1420	1440	1500	1630
VOLATILE ORGANIC CONSTITUENT	ug/l	ug/l	ug/l	ug/l
Ethylbenzene	<1.0	<1.0	<1.0	<1.0
p-Xylene	<1.0	<1.0	<1.0	<1.0
m-Xylene	<1.0	<1.0	<1.0	<1.0
o-Xylene	<1.0	<1.0	<1.0	<1.0
Styrene	<1.0	<1.0	<1.0	<1.0
Bromoform	<1.0	<1.0	<1.0	<1.0
Isopropylbenzene	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0
Bromobenzene	<1.0	<1.0	<1.0	<1.0
1,2,3-Trichloropropane	<1.0	<1.0	<1.0	<1.0
n-Propylbenzene	<1.0	<1.0	<1.0	<1.0
2-Chlorotoluene	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
4-Chlorotoluene	<1.0	<1.0	<1.0	<1.0
tert-Butylbenzene	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0
sec-Butylbenzene	<1.0	<1.0	<1.0	<1.0
p-Isopropyltoluene	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	<0.50	<0.50	<0.50	<0.50
n-Butylbenzene	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0
1,2-Dibromo-3-Chloropropane	<1.0	<1.0	<1.0	<1.0
1,2,4-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	<1.0	<1.0	<1.0	<1.0
Naphthalene	<1.0	<1.0	<1.0	<1.0
1,2,3-Trichlorobenzene	<1.0	<1.0	<1.0	<1.0
cis-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0

REMARKS: Sample was properly preserved and in specified container. Sample was analyzed in accordance with EPA Method 524.2.

cc: Envirocon, Livingston.